**Improving the Use of Technology in the Workplace**

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**Leading and Managing Educational Technology**

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**Executive Summary**

Sweetwater Middle School is in need of performance improvement in their use of the instructional technology purchased by the school. It would be a waste to continue allowing the equipment to sit in the media center collecting dust. Currently, there is a 37% use of technology amongst the staff. After talking with several staff members and conducting a survey among 100 teachers of the 135 teachers employed at the school, the majority of them agreed that the problem exists because of lack of training.

I propose that Sweetwater Middle School budgets $20,500 to train the teachers in the use of the provided technology and to develop effective technology integrated lesson plans to use in the classroom for all subjects. With this plan in place, the teachers will attend training sessions in the summer. The two-day training session will take a total of ten hours. Afterwards, teachers will be challenged to create lesson plans that include the equipment from the training. The lesson plans will be evaluated using a rubric developed by a select group of teachers that are already astute in using the technical equipment and the curriculum coaches. The approved lesson plans will then be added to the lesson-plan data base and modeled for the staff.

This plan will help in reaching a goal of at least 50% participation from the staff within the first year of use. To ensure that the strategy is effective, a formative evaluation and a summative evaluation have been developed to keep track of the progress.

**Improving the Use of Technology in the Workplace**

**Sweetwater Middle School**

**Problem Summary**

The teachers of Sweetwater Middle School, need to increase their use of technology. They have acquired many types of technologies for use in the classroom. They have not utilized much of it because of lack of appropriate training and lack of time to self-teach. They would like to use the technology to increase student engagement and motivation, to solicit and entice parental involvement, and improve their relationship with the community.

**Background of Organization**

﻿Sweetwater Middle School was founded in 1978. It is located at 3500 Cruse Road, Lawrenceville, Georgia 30045. The school is a part of the Gwinnett County school district, named the top urban school district in the country in 2010. Gwinnett County school district is also the 2010 winner of the one-million dollar Broad Prize for urban education. The school has 1816 students for grades sixth through eighth. The schools website is located at <http://www.sweetwatermiddleschool.net/>. All annual reports about this organization are published on the school's website (Sweetwater Middle School, 2011).

**Stakeholders and Decision-Makers.**

The administrative team makes all of the decisions for the school. The team consists of the prinicpal, Mrs Georgann Eaton, and the five assistant principals, Dr. Ammie Butorac, Mr. Lemuel Collins, Mr. Ernest Moore, Ms. Dietra Brown, and Dr. Twanitta Pouncey. The following media staff and IT support staff are the key personnel that can provide insights into the performance problem: Alicia Cannon, Tracey Brundage and Sott Gurdak.  
**Performance Gap: Cause Analysis**

**Actual Current Performance.**

Currently, the amount of technology used by the teachers is approximately 37%. I totaled the quantity of technology available, which is 184 pieces of equipment, and used this number and the number of technology checked out, which is 68 pieces of equipment, of the media center to determine the percentage of technology being used at the school. See Appendix A.

**Desired Performance.**

In order for the problem to be resolved, more teachers need to utilize the provided technology. The usage percentage should be at least at 50%. That would mean that 92 of the 184 pieces of equiment would be checked out at one time.

**Performance Gap.**

The performance gap is 13%. Less than half the staff utilizes the available technology, therefore only 37% of the technology is checked out of the media center.

**Cause Analysis.**

The majority of the teachers agree that they do not feel comfortable using some of the technology available or that the amount of time needed to self-teach or to familiarize themselves with the devices, is not available. All of the teachers agreed that they would prefer to see model lessons utilizing the instruments before they would be comfortable enough to use the tools themselves. See Appendix B and Appendix C.

**Organizational History and Background**

**Goals.**

Objective: Sweetwater Middle School will increase academic performance in mathematics for all students, including students in the special education and ELL/LEP subgroups, to meet or exceed annual targets. Technology tools and manipulatives will be used in all math classrooms. Interactive web based mathematics instruction will be included in Connections classes as well as afterschool programs. Additional time for instruction will be provided each day for support and extension learning opportunities.If all of the math teachers were utilizing the technology available, the achievment gap would not be as wide (Sweetwater Middle School, 2011).

**History.**

Sweetwater Middle School was named for the surrounding Sweetwater community. The building is located on the grounds of what was once farmland where cotton and peepers were grown. The area grew in the 1970s and so the school was built to meet the growing needs of the community. The school opened in 1976 with 750-800 students. The students that atended the school were drawn from Lilburn Middle, Bethesda Elementary, and Lilburn Elementary schools. The original building could house 1,200 students. It had 36 classrooms, two multi-purpose rooms, a media center , a physical education facility and a cafeteria (Sweetwater Middle School, 2011).

In 1989, the school distinguished itself by earning the title of Gwinnett County Middle School of Excellence (Sweetwater Middle School, 2011).

It then went on to be named a 1989-90 Georgia School of Excellence. Sweetwater students are known as the “Saints” a nickname chosen by the first principal. He also selected the school colors, which are maroon and gold. The colors were changed in 2001 to red, white, and blue to coincide with the school colors at Berkmar High School. At this time, the school contains six computer labs (Sweetwater Middle School, 2011).

In 2003, the school had grown to a pupulation of 2,560 students and a staff consisting of 225 personnel (Sweetwater Middle School, 2011).

**Vision, Philosophy and Mission.**

Vision – Sweetwater Middle School will be a World Class School for the 21st Century.

Philosophy – Relationships, Rigor, Relevance & Results in teaching and Learning will close the achievement gap and our school recognized as a Title I School of Distinction.

Mission – Sweetwater Middle School students will be promoted to the High School “on time” with an academic vocabulary of more than 3500 words and phrases.

(Sweetwater Middle School, 2011).

**Three Intervention Strategies**

* **Low end intervention.** Provide additional training for the teachers by the IT team to learn how to use the provided technology. The time used would be fifty minutes per week for all of the teachers during a planning session. Teachers would be given the opportunity to choose a technology resource to develop a lesson plan in their subject area. The lesson plan would be demonstrated while shared with the other teachers that teach the same subject. Teachers will be given credit towards recertification for developing the lesson plan.
* **Middle end intervention.** The teachers are provided the additonal training weekly afterschool with compensation for their time. They work in subject groups to develop lesson plans that use the technology resources. The lessons are demonstrated while being shared with the staff that did not take advantage of the afterschool training. The demonstrations will occur during the group planning already provided in the schedule. Teachers will be given credit towards recertification for developing the lesson plan.
* **High end intervention.** The teachers are given additional training during the summer with compensation for their time. They work in subject groups to develop nine lesson plans that use the technology resources for the first nine weeks of the school year. One lesson plan is created for each week. The teams meet again towards the end of the second and third nine weeks to develop additional lesson plans. The usage of the lesson plans are monitored by the Curriculum Coaches.

**Justification for Intervention Strategy**

The high-end intervention strategy will be proposed to Sweetwater Middle School. The low-end strategy would not work well because the motivation for the teachers to participate is very minimal. The motivation for this strategy is the benefit of learning how to incorporate and use the available technology. The positive aspect for the low-end intervention is that it would not cost the school any additional funds. Considering the current budget, this option would be the most feasible.

The middle-end intervention includes an additional component. The teachers not only learn how to use the equipment, but the also design lesson plans using the technology for others to use. The lesson plans would motivate more teachers to take advantage of the technology. The limitation of the middle-end intervention is that the teachers will not be compensated for developing the lesson plans. They will receive credit toward recertification; however, most teachers do not need any additional credit than what is given for the staff development workshops throughout the school year. Without monetary reparation, few teachers are likely to write lesson plans to share with the staff.

The high-end intervention is the best solution because it has the strongest motivation factor for the teachers. Teachers are more likely to participate in the training and develop relevant lesson plans for monetary compensation. Every summer the teachers at Sweetwater Middle School participate in a staff-development training. This year, the training could include integrating technology in the classroom. The IT team would provide the training and the teachers would work together in their content areas to develop a lesson plan for the various topics that they teach. Nine lesson plans would be created for each grade level to use once a week. The lesson plans would be used and tweeked as needed. The final product would be published in the online lesson plan data base for future use. The goal of all teachers using a technology lesson plan once per week will ensure that the amount of equipment being utilized increase to at least 50%.

**The Manager’s Many Roles**

Project management techniques:

“At the heart of project management is an individual who is ultimately accountable for the successful completion of the project” (Januszewski and Molenda, 2008). A basic plan will be developed with ground rules for the school’s decision makers to ensure the successful completion of the project. This project will require the manager to ensure that the summer workshops for the teachers have a location, date, time and instructors. The budget plan must be developed to include compensation for the teachers.

Resource management techniques:

The technology equipment will be used in the workshops to educate the teachers on how to use the available equipment. These resources include: Mimio slates, Clickers, Team buzzers, Mimio Interactive boards, Wireless Slate Airliner, video cameras, etc. The teachers will be assigned to develop lesson plans that use the equipment. Each grade level will receive the same amount of equipment for tracking purposes.

Delivery system management techniques:

The intervention strategy will be implemented with the use of the various technologies available by the school. The instructor will demonstrate the use of the officiator 10 player buzzer system, CPS, the camcorder, Mimio View Mimio, Visual Presenter, Beyond Question set, Digital Visualizer, Mimio Pad, video camera, Wireless Slate Airliner, Mimio Interactive Studio, and digital camera.

Information management techniques:

The lesson plans that are created by the teachers should meet the standards of the rubric. The teachers will be evaluated monthly to ensure use of the new lesson plans and to offer assistance when necessary. The lesson plans will be stored in the online lesson plan database. The lesson plan rubric and tutorials for the use of each piece of equipment will be stored on the school’s intranet for easy access.

**The Manager as Change Agent**

As Change Agent the staff has to first be made aware of the problem that exist. The staff should know that there is a lack in the use of the available technology. The staff must also understand the need for an improved effort on their part with the use of the technology. The initial stage might include: an interest survey, a demonstration lesson using one of the available devices, and a discussion of possible interventions.

**Financial and Budget Information.**

The tentative budget includes hourly pay for all participating faculty.

Teachers - $30/hour for 10 hours = $300/teacher (60 teachers would cost $18,000)

Teachers - $20 for each acceptable lesson plan (10 acceptable lesson plans would cost $200)

Curriculum Specialist - $32/hour to lead the groups in developing the lesson plans for 10 hours (4 Curriculum Specialists would cost $1280)

IT staff - $32/hour to instruct the teachers on the use of the available technology and facilitate the development of the lesson plans for 10 hours (2 IT specialists would cost $640)

Total Budget = $20,520

See Appendix D.

**Project Assessment.**

The formative evaluation plan includes an instrument to use to keep track of the number of each type of equipment being utilized by the teachers. The formative evaluation tools should be used every 20 – 25 school days or monthly. See Appendix E.

The summative evaluation plan includes a summary chart of all of the formative evaluation data. The number of items checked out should be recorded in the chart. The information will come from the formative evaluations. The last column should be used to record the average difference from month to month. See Appendix F.

References

Sweetwater Middle School. (2011). History of sweetwater middle school. Retrieved from: <http://www.sweetwatermiddleschool.net/files/144842/SweetwaterMShistory.pdf>

Januszewski, A., Molenda, M. (2008). Educational technology, a definition with commentary. Routledge Taylor and Francis Group: New York, NY.

**Appendix A**

|  |  |  |
| --- | --- | --- |
| **Technology Equipment**  **Sweetwater Middle School Media Center** | | |
| **No.** | **Title** | **Quantity Available** |
| **1** | **Officiator 10 Player Buzzer System** | **3** |
| **2** | **CPS** | **7** |
| **3** | **Camcorder – Digital** | **6** |
| **4** | **Mimio View Mimio** | **12** |
| **5** | **Visual Presenter EV-200** | **3** |
| **6** | **Beyond Question set** | **6** |
| **7** | **Digital Visualizer DC162** | **3** |
| **8** | **Mimio Pad** | **24** |
| **9** | **Data Projector** | **24** |
| **10** | **Flip Video Camera U1120W** | **4** |
| **12** | **Wireless Slate WS100 Airliner** | **39** |
| **13** | **Mimio Interactive Studio 600-0045** | **48** |
| **14** | **Power Shot Digital Camera S3 IS** | **5** |
|  | **Total** | **184** |
|  |  |  |
|  |  |  |

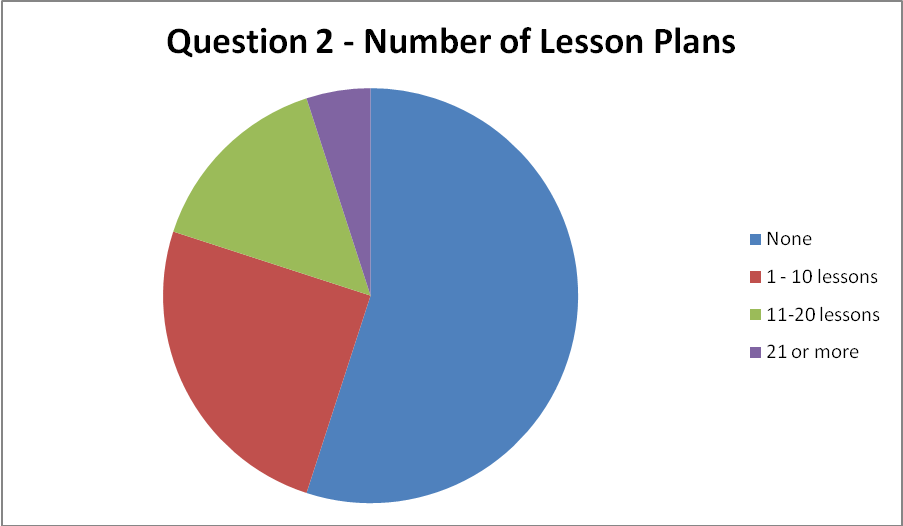
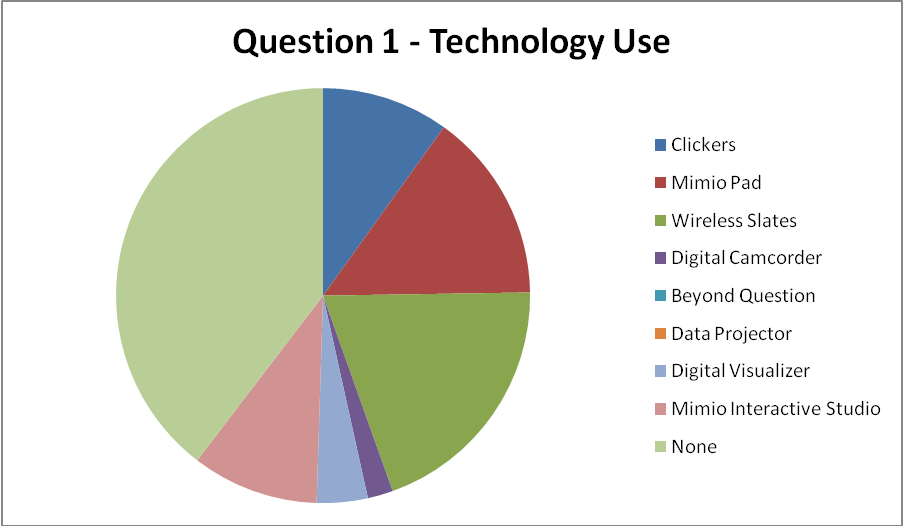
**Appendix B**

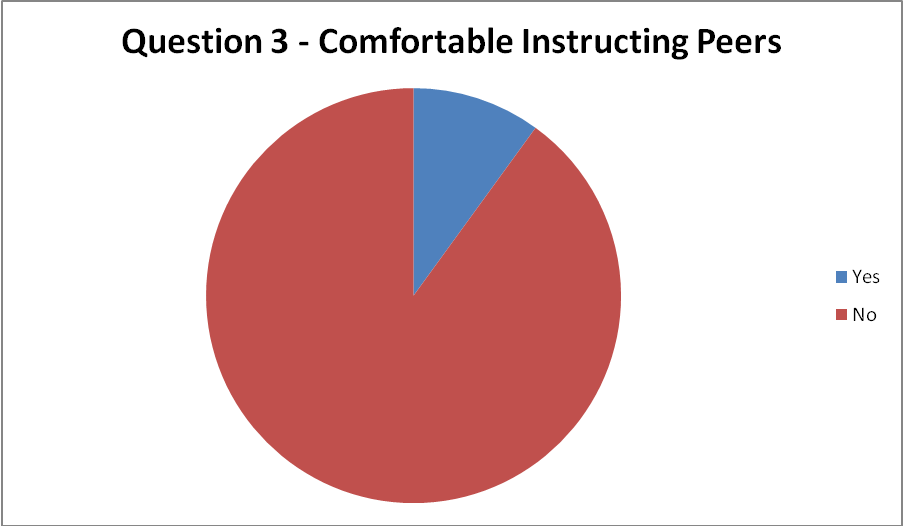
**Survey**

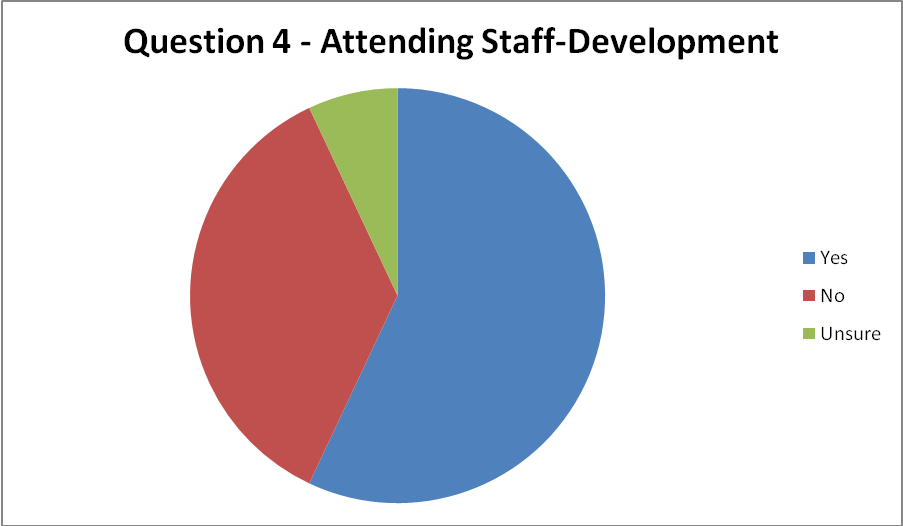
**Technology Utilization**

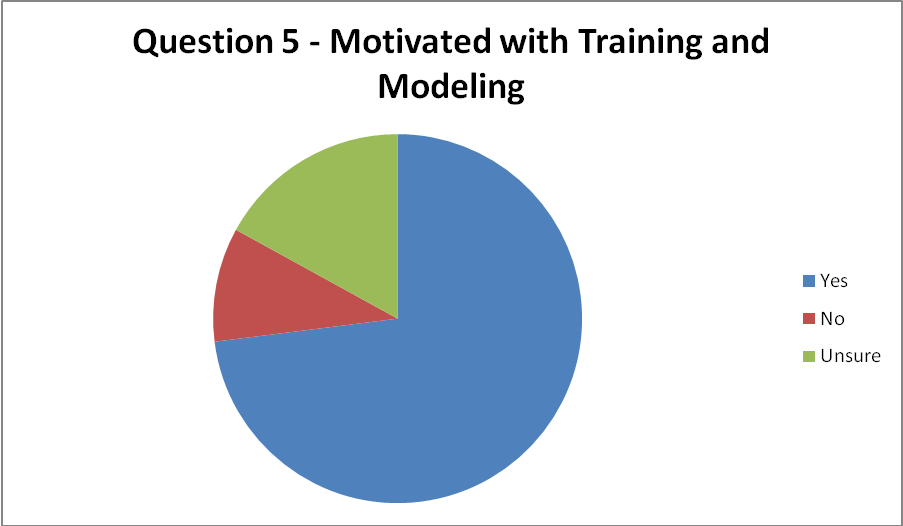
1. **What technology availabe in the Media Center are you most comfortable using in your classroom? Choose all that applies.**
   1. **Clickers**
   2. **Mimio Pad**
   3. **Wireless Slates**
   4. **Digital Camcorder**
   5. **Beyond Question set**
   6. **Data Projector**
   7. **Digital Visualizer**
   8. **Mimio Interactive Studio**
2. **How many lessons have you developed that utilize any of the above equipment?**
   1. **None**
   2. **1-5 lessons**
   3. **6-10 lessons**
   4. **11 or more lessons**
3. **Would you feel comfortable instructing other teachers on how to best utilize any of the above equipment?**
   1. **Yes**
   2. **No**
4. **Would you be interested in attending a staff-development that teaches you how to best utilize the above equipment to enhance your current lesson plans?**
   1. **Yes**
   2. **No**
   3. **Unsure**
5. **Would you be willing to use the equipment more often if you were provided training and modeling on how to use technology to enhance instruction?**
   1. **Yes**
   2. **No**
   3. **Unsure**

**Appendix C**

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**Appendix D**

**Budget**

The tentative budget includes hourly pay for all participating faculty.

Teachers - $30/hour for 10 hours = $300/teacher (60 teachers would cost $18,000)

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Curriculum Specialist - $32/hour to lead the groups in developing the lesson plans for 10 hours (4 Curriculum Specialists would cost $1280)

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Proposed Items | Rate | Quantity | Number of Participants | Cost |
| Teacher | $30/hr | 10 hours | 20-60 | $6000 - $18,000 |
| Lesson Plans | $20/plan | 10-30 |  | $200 - $600 |
| Curriculum Specialist | $32/hr | 10 hours | 2-4 | $640 - $1280 |
| IT Staff | $32/hr | 10 hours | 1-2 | $320 - $640 |
| Possible Total Cost | | | | $7160 – 20,520 |
| The total cost of the project depends on the number of participants. | | | |  |

Total Budget = $20,520

**Appendix E**

**Formative Evaluation Instrument**

**The following instrument is to be used monthly to show the number of each type of equipment being used.**

**Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |
| --- | --- |
| **Quantity of Technology Used at Sweetwater Middle School** | |
| **Technology** | **Quantity** |
| **Officiator 10 Player Buzzer System** | **3 of \_\_\_\_\_\_\_** |
| **CPS** | **7 of \_\_\_\_\_\_\_** |
| **Camcorder – Digital** | **6 of \_\_\_\_\_\_\_** |
| **Mimio View Mimio** | **12 of \_\_\_\_\_\_\_** |
| **Visual Presenter EV-200** | **3 of \_\_\_\_\_\_\_** |
| **Beyond Question set** | **6 of \_\_\_\_\_\_\_** |
| **Digital Visualizer DC162** | **3 of \_\_\_\_\_\_\_** |
| **Mimio Pad** | **24 of \_\_\_\_\_\_\_** |
| **Data Projector** | **24 of \_\_\_\_\_\_\_** |
| **Flip Video Camera U1120W** | **4 of \_\_\_\_\_\_\_** |
| **Wireless Slate WS100 Airliner** | **39 of \_\_\_\_\_\_\_** |
| **Mimio Interactive Studio 600-0045** | **48 of \_\_\_\_\_\_\_** |
| **Power Shot Digital Camera S3 IS** | **5 of \_\_\_\_\_\_\_** |

**Appendix F**

**Summative Evaluation Instrument**

**Combine the information from the Formative Evaluation Instruments to complete the following chart. This data will show if the number of technology use has increased.**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **August** | **September** | **October** | **Nov/Dec** | **January** | **February** | **March** | **April/May** | **Avg. Diff.** |
| **Officiator 10 Player Buzzer System** |  |  |  |  |  |  |  |  |  |
| **CPS** |  |  |  |  |  |  |  |  |  |
| **Camcorder – Digital** |  |  |  |  |  |  |  |  |  |
| **Mimio View Mimio** |  |  |  |  |  |  |  |  |  |
| **Visual Presenter EV-200** |  |  |  |  |  |  |  |  |  |
| **Beyond Question set** |  |  |  |  |  |  |  |  |  |
| **Digital Visualizer DC162** |  |  |  |  |  |  |  |  |  |
| **Mimio Pad** |  |  |  |  |  |  |  |  |  |
| **Data Projector** |  |  |  |  |  |  |  |  |  |
| **Flip Video Camera U1120W** |  |  |  |  |  |  |  |  |  |
| **Wireless Slate WS100 Airliner** |  |  |  |  |  |  |  |  |  |
| **Mimio Interactive Studio 600-0045** |  |  |  |  |  |  |  |  |  |
| **Power Shot Digital Camera S3 IS** |  |  |  |  |  |  |  |  |  |